

Solenoid valves VZWM-L, NPT



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Key features and type codes

General

- Indirectly actuated diaphragm valve
- Process valve connection N14 ... N2
- Flow rate 1,400 ... 31,000 l/min
- Available in brass or stainless steel casting
- Wide range of coils

VZWM – L – M22C – N14 – F4 –

| Type | |
|------|---|
| VZWM | Solenoid valve, process directional control valve |

| Design | |
|--------|---------------|
| L | In-line valve |

| Valve function | |
|----------------|--------------------------------|
| M22C | 2/2-way valve, normally closed |

| Process valve connection | |
|--------------------------|----------|
| N14 | NPT1/4 |
| N38 | NPT3/8 |
| N12 | NPT1/2 |
| N34 | NPT3/4 |
| N1 | NPT1 |
| N114 | NPT1 1/4 |
| N112 | NPT1 1/2 |
| N2 | NPT2 |

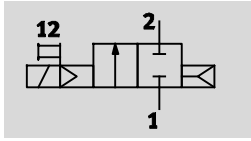
| Electrical connection | |
|-----------------------|--|
| F4 | MD-2-With armature tube for solenoid coil MD-2- ... -PA |
| F5 | MH-2-With armature tube for solenoid coil MH-2- ... -PA |


| Housing material | |
|------------------|-------------------------|
| R1 | Stainless steel casting |
| | Brass |


Solenoid valves VZWM-L, NPT

Technical data

Function



-  - Flow rate
1,400 ... 31,000 l/min

-  - Voltage
24 V DC
110, 230 V AC



| General technical data | | | | | | | | | | |
|----------------------------|---------------------|---|--------|--------|--------|--------|----------|----------|--------|-----|
| Process valve connection | | NPT1/4 | NPT3/8 | NPT1/2 | NPT3/4 | NPT1 | NPT1 1/4 | NPT1 1/2 | NPT2 | |
| Nominal size (DN) | [mm] | 13.5 | 13.5 | 13.5 | 27.5 | 27.5 | 40 | 40 | 50 | |
| Valve function | | 2/2-way, single solenoid | | | | | | | | |
| Design | | Diaphragm valve | | | | | | | | |
| Sealing principle | | Soft | | | | | | | | |
| Actuation type | | Electric | | | | | | | | |
| Reset method | | Pneumatic spring | | | | | | | | |
| Type of control | | Piloted | | | | | | | | |
| Direction of flow | | Non-reversible | | | | | | | | |
| Exhaust function | | No flow control | | | | | | | | |
| Manual override | | None | | | | | | | | |
| Type of mounting | | In-line installation | | | | | | | | |
| Mounting position | | Preferably vertical | | | | | | | | |
| Standard nominal flow rate | [l/min] | 1,400 | 2,100 | 2,400 | 10,000 | 11,700 | 24,000 | 26,400 | 31,000 | |
| Flow rate Kv | [m ³ /h] | 1.6 | 2 | 2.4 | 8.5 | 10.7 | 21.3 | 27.4 | 39 | |
| c value | [l/sbar] | 6 | 8.8 | 9.8 | 39 | 41 | 75 | 82 | 110 | |
| b value | | 0.3 | 0.35 | 0.37 | 0.5 | 0.5 | 0.6 | 0.67 | 0.68 | |
| Pressure differential | [bar] | 0.5 | 0.5 | 0.5 | 0.5 | 0.5 | 0.7 | 0.7 | 0.7 | |
| Materials | Housing | Brass or stainless steel casting | | | | | | | | |
| | Diaphragm | Nitrile rubber | | | | | | | | |
| | Armature tube | High-alloy steel | | | | | | | | |
| Note on materials | | Contains PWIS (paint-wetting impairment substances) | | | | | | | | |
| Max. tightening torque | Connecting thread | [Nm] | 35 | 60 | 105 | 200 | 350 | 450 | 540 | 620 |
| | Cover screw | [Nm] | 20 | 20 | 20 | 30 | 30 | 30 | 30 | 30 |
| | Coil mounting | [Nm] | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |

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Technical data

| Operating and environmental conditions | | | | | | | | | | | |
|---|-------------------------|----------------------|---|--------|--------|--------|------------|----------|----------|------|--|
| Process valve connection | | | NPT1/4 | NPT3/8 | NPT1/2 | NPT3/4 | NPT1 | NPT1 1/4 | NPT1 1/2 | NPT2 | |
| Operating medium | | | Compressed air in accordance with ISO 8573-1:2010 [7:4:4] | | | | | | | | |
| | | | Neutral liquids | | | | | | | | |
| | | | Inert gases | | | | | | | | |
| | | | Water | | | | | | | | |
| Ambient temperature ¹⁾ | | [°C] | -10 ... +60 | | | | | | | | |
| Operating pressure, valve | Gases | [bar] | 0.5 ... 10 | | | | 0.7 ... 10 | | | | |
| | Fluids | [bar] | 0.5 ... 6 | | | | 0.7 ... 6 | | | | |
| Medium pressure | Gases | [bar] | 0.5 ... 10 | | | | 0.7 ... 10 | | | | |
| | Fluids | [bar] | 0.5 ... 6 | | | | 0.7 ... 6 | | | | |
| Temperature of medium | Gases | [°C] | -10 ... +60 | | | | | | | | |
| | Fluids | [°C] | 5 ... 50 | | | | | | | | |
| Max. viscosity | | [mm ² /s] | 22 | | | | | | | | |
| Corrosion resistance class CRC ²⁾ | Brass | | 1 | | | | | | | | |
| | Stainless steel casting | | 3 | | | | | | | | |

1) Note ambient temperature of solenoid coils

2) Corrosion resistance class 1 according to Festo standard 940 070

Components subject to low corrosion stress. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Corrosion resistance class 3 according to Festo standard 940 070

Components subject to high corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as solvents and cleaning agents.

| Valve switching times | | | | | | | | | | |
|------------------------------|-----|------|--------|--------|--------|--------|------|----------|----------|-------|
| Process valve connection | | | NPT1/4 | NPT3/8 | NPT1/2 | NPT3/4 | NPT1 | NPT1 1/4 | NPT1 1/2 | NPT2 |
| Gases | | | | | | | | | | |
| Switching time | Off | [ms] | 10 | 10 | 10 | 12 | 12 | 20 | 20 | 21 |
| | On | [ms] | 8 | 8 | 8 | 15 | 15 | 26 | 26 | 62 |
| Liquids | | | | | | | | | | |
| Switching time | Off | [ms] | 200 | 210 | 220 | 930 | 930 | 1,900 | 2,000 | 2,800 |
| | On | [ms] | 100 | 110 | 110 | 400 | 400 | 1,400 | 1,400 | 2,100 |
| Switching time of variant R1 | Off | [ms] | 210 | 190 | 200 | 950 | 950 | 1,900 | 2,000 | 2,800 |
| | On | [ms] | 80 | 110 | 110 | 420 | 300 | 1,400 | 1,400 | 2,100 |

| Electrical data | | | | | | | | | | | |
|------------------------------|------------|--------|---|--------|--------|--------|---|----------|----------|------|--|
| Process valve connection | | | NPT1/4 | NPT3/8 | NPT1/2 | NPT3/4 | NPT1 | NPT1 1/4 | NPT1 1/2 | NPT2 | |
| Electrical connection | | | F4, with armature tube for solenoid coil MD-2- ... -PA, must be ordered separately | | | | MH-2-F5, with armature tube for solenoid coil MH-2- ... -PA, must be ordered separately | | | | |
| Operating voltage | DC voltage | [V DC] | 24 | | | | | | | | |
| | AC voltage | [V AC] | 110/230 (50 ... 60 Hz) | | | | | | | | |
| Coil characteristics | DC voltage | [W] | 6.8 | | | | 7.9 | | | | |
| | AC voltage | [VA] | Pull: 14.5 Hold: 10.5 | | | | 14 | | | | |
| Protection class to EN 60529 | | | IP65 (with plug socket) | | | | | | | | |

Solenoid valves VZWM-L, NPT

Technical data

| Weight [g] | | | |
|---------------------|-------|---------------------------------|-------|
| Brass housing | | Stainless steel casting housing | |
| VZWM-L-M22C-N14-F4 | 500 | VZWM-L-M22C-N14-F5-R1 | 400 |
| VZWM-L-M22C-N38-F4 | 450 | VZWM-L-M22C-N38-F5-R1 | 400 |
| VZWM-L-M22C-N12-F4 | 415 | VZWM-L-M22C-N12-F5-R1 | 400 |
| VZWM-L-M22C-N34-F4 | 1,220 | VZWM-L-M22C-N34-F5-R1 | 1,200 |
| VZWM-L-M22C-N1-F4 | 1,200 | VZWM-L-M22C-N1-F5-R1 | 1,100 |
| VZWM-L-M22C-N114-F5 | 2,700 | VZWM-L-M22C-N114-F5-R1 | 2,600 |
| VZWM-L-M22C-N112-F5 | 2,510 | VZWM-L-M22C-N112-F5-R1 | 2,500 |
| VZWM-L-M22C-N2-F5 | 4,000 | VZWM-L-M22C-N2-F5-R1 | 3,700 |

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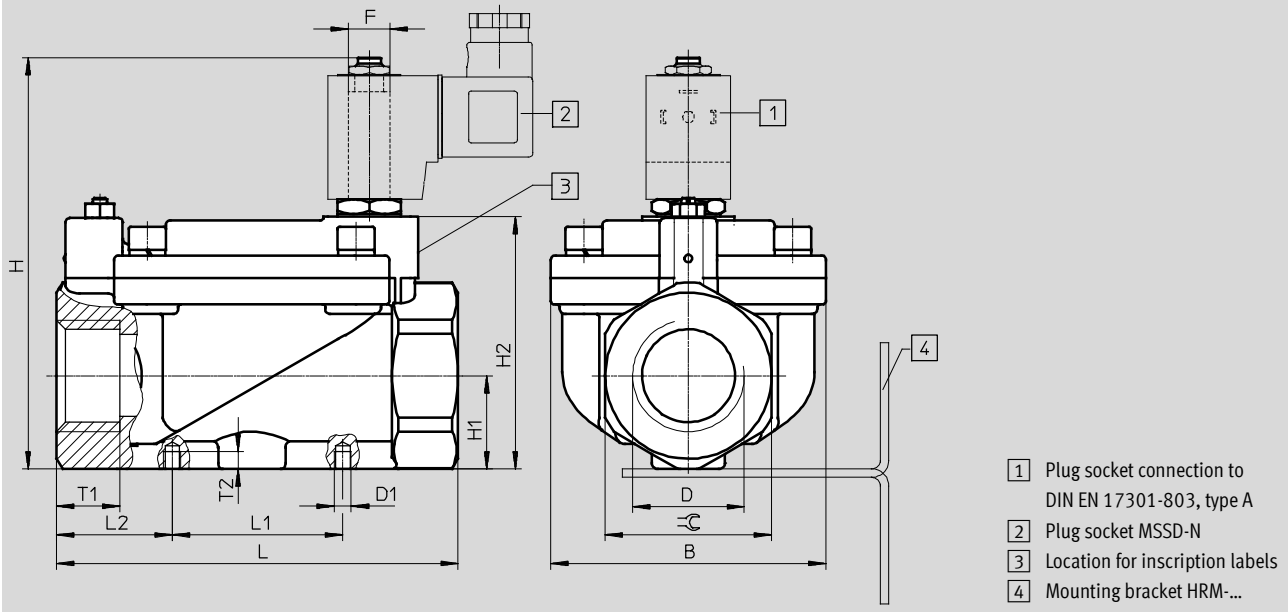
Technical data

FESTO

Dimensions

Download CAD data → www.festo.com

2/2-way valve



- 1 Plug socket connection to DIN EN 17301-803, type A
- 2 Plug socket MSSD-N
- 3 Location for inscription labels
- 4 Mounting bracket HRM-...

| Type | B ±1.5 | D | D1 | H ±2 | H1 ±1.5 | H2 ±1 | L ±2 | L1 ±1.5 | L2 | F | T1 | T2 ±0.5 | ∅C |
|------------------------|-----------|----------|----|---------|------------|----------|---------|------------|-------|----|----|------------|----|
| VZWM-L-M22C-N14-F4 | 48 | NPT1/4 | M4 | 85.5 | 15 | 49 | 67 | 25 | 21 | F5 | 12 | 4 | 27 |
| VZWM-L-M22C-N38-F4 | 48 | NPT3/8 | M4 | 85.5 | 15 | 49 | 67 | 25 | 21 | F5 | 12 | 4 | 27 |
| VZWM-L-M22C-N12-F4 | 48 | NPT1/2 | M4 | 85 | 15 | 49 | 67 | 25 | 21 | F5 | 12 | 4 | 27 |
| VZWM-L-M22C-N34-F4 | 70 | NPT3/4 | M6 | 107 | 24.2 | 70.5 | 96 | 40 | 28 | F5 | 16 | 6 | 41 |
| VZWM-L-M22C-N1-F4 | 70 | NPT1 | M6 | 107 | 24.2 | 70.5 | 96 | 40 | 28 | F5 | 16 | 6 | 41 |
| VZWM-L-M22C-N114-F5 | 96 | NPT1 1/4 | M6 | 143.5 | 32.5 | 87 | 140 | 59.5 | 40.25 | F5 | 22 | 6 | 58 |
| VZWM-L-M22C-N112-F5 | 96 | NPT1 1/2 | M6 | 143.5 | 32.5 | 87 | 140 | 59.5 | 40.25 | F5 | 22 | 6 | 58 |
| VZWM-L-M22C-N2-F5 | 112 | NPT2 | M6 | 159 | 38.5 | 103.5 | 168 | 59.5 | 54.25 | F5 | 25 | 6 | 70 |
| VZWM-L-M22C-N14-F5-R1 | 44 | NPT1/4 | M4 | 106 | 15.6 | 51 | 67 | 25 | 21 | F4 | - | 4 | 27 |
| VZWM-L-M22C-N38-F5-R1 | 44 | NPT3/8 | M4 | 106 | 15.6 | 51 | 67 | 25 | 21 | F4 | - | 4 | 27 |
| VZWM-L-M22C-N12-F5-R1 | 44 | NPT1/2 | M4 | 106 | 15.6 | 51 | 67 | 25 | 21 | F4 | - | 4 | 27 |
| VZWM-L-M22C-N34-F5-R1 | 70 | NPT3/4 | M6 | 126 | 24.2 | 70 | 96 | 40 | 28 | F4 | - | 6 | 41 |
| VZWM-L-M22C-N1-F5-R1 | 70 | NPT1 | M6 | 126 | 24.2 | 70 | 96 | 40 | 28 | F4 | - | 6 | 41 |
| VZWM-L-M22C-N114-F5-R1 | 96 | NPT1 1/4 | M6 | 145 | 34 | 89.5 | 140 | 59.5 | 40.25 | F5 | - | 6 | 58 |
| VZWM-L-M22C-N112-F5-R1 | 96 | NPT1 1/2 | M6 | 145 | 34 | 89.5 | 140 | 59.5 | 40.25 | F5 | - | 6 | 58 |
| VZWM-L-M22C-N2-F5-R1 | 112 | NPT2 | M6 | 159 | 38.5 | 104 | 168 | 59.5 | 40.25 | F5 | - | 6 | 70 |

Ordering data

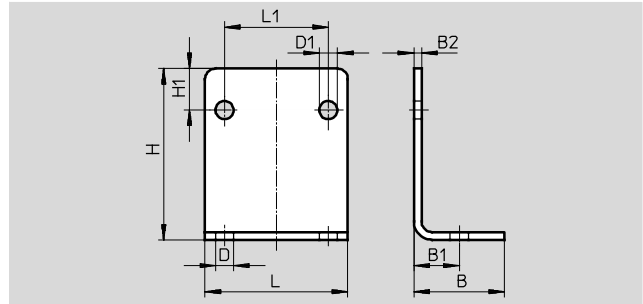
| Process valve connection | Brass housing | | Stainless steel casting housing | |
|--------------------------|---------------|---------------------|---------------------------------|------------------------|
| | Part No. | Type | Part No. | Type |
| NPT1/4 | 546 154 | VZWM-L-M22C-N14-F4 | 546 170 | VZWM-L-M22C-N14-F5-R1 |
| NPT3/8 | 546 155 | VZWM-L-M22C-N38-F4 | 546 171 | VZWM-L-M22C-N38-F5-R1 |
| NPT1/2 | 546 156 | VZWM-L-M22C-N12-F4 | 546 172 | VZWM-L-M22C-N12-F5-R1 |
| NPT3/4 | 546 157 | VZWM-L-M22C-N34-F4 | 546 173 | VZWM-L-M22C-N34-F5-R1 |
| NPT1 | 546 158 | VZWM-L-M22C-N1-F4 | 546 174 | VZWM-L-M22C-N1-F5-R1 |
| NPT1 1/4 | 546 159 | VZWM-L-M22C-N114-F5 | 546 175 | VZWM-L-M22C-N114-F5-R1 |
| NPT1/2 | 546 160 | VZWM-L-M22C-N112-F5 | 546 176 | VZWM-L-M22C-N112-F5-R1 |
| NPT2 | 546 161 | VZWM-L-M22C-N2-F5 | 546 177 | VZWM-L-M22C-N2-F5-R1 |

Solenoid valves VZWM-L


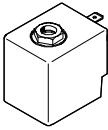
Accessories

Mounting bracket HRM


Material:
Galvanised steel



| Dimensions and ordering data | | | | | | | | | | | |
|------------------------------|------|----|--------|---------|----|----|----|------|---------------|----------|-------|
| B | B1 | B2 | D Ø | D1 Ø | H | H1 | L | L1 | Weight [g] | Part No. | Type |
| 25 | 12.5 | 2 | 6 | 5 | 37 | 10 | 40 | 25 | 39 | 9 769 | HRM-1 |
| 35 | 17.5 | 3 | 7 | 7 | 66 | 16 | 55 | 40 | 130 | 9 770 | HRM-2 |
| 47 | 23.5 | 3 | 9 | 7 | 87 | 23 | 75 | 59.5 | 246 | 9 771 | HRM-3 |

| Ordering data – Solenoid coils | | | Technical data → Internet: solenoid coil | |
|---|------------------------|----------|--|--|
| | Voltage | Part No. | Type | |
| Solenoid coil for VZWM- ... -F4- ... ¹⁾ | | | | |
|  | 24 V DC | 549 903 | MD-2-24VDC-PA | |
| | 110 V AC, 50 ... 60 Hz | 549 904 | MD-2-110VAC-PA | |
| | 230 V AC, 50 ... 60 Hz | 549 905 | MD-2-230VAC-PA | |
| Solenoid coil for VZWM- ... -F5- ... ¹⁾ | | | | |
|  | 24 V DC | 549 906 | MH-2-24VDC-PA | |
| | 110 V AC, 50 ... 60 Hz | 549 907 | MH-2-110VAC-PA | |
| | 230 V AC, 50 ... 60 Hz | 549 908 | MH-2-230VAC-PA | |

1) Ambient temperature –20 ... 50 °C

| Ordering data – Plug socket | | Technical data → Internet: mssd-n | |
|---|----------|-----------------------------------|--|
| | Part No. | Type | |
|  | 550 067 | MSSD-N | |
| 3-pin, square design MSF | | | |